

Fate Report for Case # P-18-0227

Fate Summary Statement

Fate P-18-0227

Summary FATE:
Statement:



POTW removal (%) = 95-99.9 via
sorption and biodeg
Time for complete ultimate aerobic biodeg =
wk
Sorption to soils/sediments = low
PBT Potential: P1B1
*CEB
FATE: Migration to ground water = negl
Bioconcentration factor to be
put into E-FAST: NA

PMN Material:

Overall wastewater treatment
removal is 95-99.9% via biodegradation.

Sorption to sludge is low
based on the high measured water solubility and estimated
physical-chemical properties from EPISUITE.

Air Stripping

(Volatilization to air) is negligible based on estimated physical-chemical
properties from EPISUITE.

Removal by biodegradation in wastewater
treatment is high based on measured analog data (Glucitol, CASRN 50-70-4:
100% HPLC, 94% TOC and 82% by BOD; Calcium Gluconate, CASRN 299-28-5:
100%

by HPLC, 98% by TOC and 79% by BOD).

Destruction of the substance in
wastewater treatment is complete based on measured analog data (Glucitol,
CASRN 50-70-4: 100% HPLC, 94% TOC and 82% by BOD; Calcium Gluconate,
CASRN

299-28-5: 100% by HPLC, 98% by TOC and 79% by BOD).

The aerobic

aquatic biodegradation half-life is weeks based on measured analog data

Physical Properties

| Property | Measured/Calculated Value | EPI |
|-----------------|---------------------------|-----|
| Molecular Form: | C6 H10 O8 | |
| Molecular Wt.: | 210.14 | |
| % < 500: | | |
| % | | |
| < 1000: | | |

| Property | Measured Value | Method | Estimated Value | Method | EPI |
|----------------|----------------|--------|-----------------|--------|-----|
| Melting Point: | | | | | |

| Property | Measured Value | Method | Estimated Value | Method | EPI |
|-----------------|----------------|--------|-----------------|--------|-----|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| pH: | | | | | |
| pH | | | | | |
| Comment: | | | | | |

Fate Analysis

| | |
|--------------------|--|
| Hydrolysis | |
| (t1/2, | |
| da): | |
| Atm Ox | |
| Potential | |
| (t1/2)OH | |
| (hr): | |
| MITI | |
| Linear: | |
| Biodeg | |
| Linear: | |
| Biodeg | |
| Survey | |
| ult: | |
| STP (% removal) | |
| Total: | |
| STP (% removal) | |
| Ads: | |

Rationales

| | |
|----------------------------------|--|
| Removal in Wastewater Treatment: | |
| Atmospheric Oxidation: | |
| Hydrolysis: | |
| Photolysis: | |
| Aerobic Biodegradation: | |
| Anaerobic Biodegradation: | |

**Sorption
to Soil and
Sediment:**
**Migration to
Groundwater:**
Persistence - Air:
**Persistence
- Water:**
**Volatilization from
Water:**
Soil:
Sediment:
Other:
Standard:
Bioaccumulation:

PBT Ratings

| Persistence | Bioaccumulation | Toxicity | PBT Comments |
|-------------|-----------------|----------|-----------------|
| 1 | 1 | | |

Exposure-Based Testing

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|----------------------------|
| Exposure-Based Testing: |
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Fate Ratings

Removal in WWT/POTW (Overall):

| |
|--|
| Removal in 95-99.9 WWT/POTW (Overall): |
|--|

| Condition | Rating Values | Rating Description | | | | Comment |
|----------------|---------------|--------------------|----------|----------|------------|---------|
| | | 1 | 2 | 3 | 4 | |
| WWT/POTW | 1 | Low | Moderate | Strong | V. Strong | |
| Sorption: | | | | | | |
| WWT/POTW | 4 | Extensive | Moderate | Low | Negligible | |
| Stripping: | | | | | | |
| Biodegradation | 2 | Unknown | High | Moderate | Negligible | |
| Removal: | | | | | | |
| Biodegradation | 2 | Unknown | Complete | Partial | — | |
| Destruction: | | | | | | |
| Aerobic | 2 | <= | Weeks | Months | > | |
| Biodeg Ult: | | Days | | | Months | |
| Aerobic Biodeg | | <= Days | Weeks | Months | > | |
| Prim: | | | | | Months | |
| | 2 | <= Days | Weeks | Months | | |

| Condition | Rating Values | Rating Description | | | | Comment |
|----------------------------------|---------------|--------------------|--------|----------|-----------|---------|
| | | 1 | 2 | 3 | 4 | |
| Anaerobic Biodeg Ult: | | | | | > Months | |
| Anaerobic Biodeg Prim: | | <= Days | Weeks | Months | > Months | |
| Hydrolysis (t1/2 at pH 7,25C) A: | | <= Minutes | Hours | Days | >= Months | |
| Hydrolysis (t1/2 at pH 7,25C) B: | | <= Minutes | Hours | Days | >= Months | |
| Sorption to Soils/Sediments: | 4 | V. Strong | Strong | Moderate | Low | |
| Migration to Ground Water: | 1 | Negligible | Slow | Moderate | Rapid | |
| Photolysis A, Direct: | | Negligible | Slow | Moderate | Rapid | |
| Photolysis B, Indirect: | | Negligible | Slow | Moderate | Rapid | |
| Atmospheric Ox A, OH: | | Negligible | Slow | Moderate | Rapid | |
| Atmospheric Ox B, O3: | | Negligible | Slow | Moderate | Rapid | |

Bio**Comments:**

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| <p>Bio The diacid structure drawn</p> <p>Comments: represents the solid form of the PMN material. In aqueous solution, the substance exists as the diacid in equilibrium with lactone forms (such as <chem>OC(=O)C(O)C1C(O)C(O)C(=O)O1</chem>). This equilibrium is transient in nature, incidental to storage of the aqueous solutions, and has no commercial purpose. In addition, the end use of the aqueous solution will generally push the equilibrium back to the diacid form.</p> <p>A fate study summary is available. Fugacity calculations are available. Fish log BAF = -0.05 (1).</p> <p>The fugacity spreadsheet and the EPI output file for the PMN material with manually entered properties are attached.</p> |
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Fate Comments:

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| Fate Comments: |
|-----------------------|

Comments/Telephone Log

| Artifact | Update/Upload Time |
|---|---|
|  |  |

| Artifact | Update/Upload Time |
|---|---|
|  |  |